Fermilab

Computing

Lessons Learned

Budget and Planning System (BPS)
Phase 2

Version 1.0

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PREPARED BY:
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Lessons Learned Approvals

Name	Signature	Date

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1. Attendees and Contributors

Attendee Name	Department / Title	Role	Phone Number
Julie Marsh	OCIO/PMO	Project Manager	x6020
Matt Crawford	OCIO/PMO	Project Manager	x3461
Mark Kaletka	CCD	Technical Lead	x2965
Denise Keiner	Budget Officer	Line Manager	x6462
Tim Chapman	Deputy Budget Officer	Technical Staff	x2349
Sarah Grimsley	Financial Manager	Technical Staff	x8616

2. Highlighted points

The following points are called out for attention. They are shaded red where they appear below.

- Doing this in the cloud was new and different for us. And in the Government Cloud (the right choice) we found Oracle underprepared to support us.
- Oracle was underprepared to support customers in the government cloud. This should be borne in mind at renewal time, and we suspect this may be observed in other projects, with other vendors.
- The Oracle product does not contain the robust reporting capability that was described during the demo, and Oracle is not adding it.
- Our consultants could not make a test plan nor deliver results of their testing.

3. Project team feedback

Name / Role	Comment	Phase
Planning		
Julie Marsh/PM	During tool evaluations, we may not have put enough focus on reporting requirements.	Execution
Mark Kaletka/TL	We need to document, in the SOW, specific standards for quality control and documentation of developed code, including requirements for code reviews, unit and integration testing, reviewing and documenting tests and test results, and coding standards including reusability.	Planning
Sarah Grimsley/TS	A fixed money contract would be preferable if we could get it. But failing that, structuring the contract as a first phase and optional extensions contingent on performance might put us in a better position.	Planning
Product selection		
Denise Keiner/LM	When vendors came to demo at RFI time, one vendor dropped out, thinking they couldn't deliver everything, but they might have had a good resourcing solution for us.	Planning
Denise Keiner/LM	We may or may not have hit the limits of the tool, but the things we asked for were certainly out near the edges. Vendors may not have realized that while bidding.	Planning Execution

NAME / ROLE	COMMENT	PHASE
Denise Keiner/LM	Doing this in the cloud was new and different for us. And in the Government Cloud (the right choice) we found Oracle underprepared to support us. Could we have discovered this in the RFP?	Planning
Denise Keiner/LM	The Oracle product does not contain the robust reporting capability that was described during the demo, and Oracle is not adding it.	Planning
Execution		
Mark Kaletka/TL	I think effort from the Computing side was adequate for the integration efforts, but the other work definitely needed more effort from Finance and Huron.	Execution
Denise Keiner/LM	Needed more budget office effort, yes, but the need would not have been so acute if computing's effort had been more expert.	Execution
Julie Marsh/PM	We should have had our own technical staff involved at a higher percentage, earlier. Line management does not disagree, although there were constraints due to other duties.	Execution
Several	The new project sponsor came on board with a different idea of who should do what.	Execution
Working with subcontractors		
Julie Marsh/PM	Our developer with the most technical experience left Huron at a critical point in the project. Our junior developer then had to train a replacement, who lost time and did not understand some of the prior decisions.	Execution
Julie Marsh/PM	Huron said the project took a lot more time than they estimated, and we don't know why they said that.	Execution
Julie Marsh/PM	Huron's first project manager was not up to the task. Their second one was better, but still did not make schedule updates very quickly.	Execution
Julie Marsh/PM	There was no record of how Huron tested the application as (or after) they built it. Their proposal touted their QA process.	Execution
Mark Kaletka/TL	In some cases, Huron should have pushed back on us more or made it clearer what the consequences would be when we did tend to go outside best practice. Huron, I think, tended toward "give the customer what they want and don't argue." At the same time, we should've listened to Huron better when they did point out we weren't following best practice.	Planning Execution
Sarah Grimsley/TS	We needed greater technical oversight of Huron - someone in all the design, decision, and technical meetings, to ensure they developed the system to those requirements. They went off in wrong directions, and time could have been saved if addressed early on. In general, Huron took their own notes and set to work based on them, without our review / concurrence. Recommend bi-weekly technical review meetings, even for work in progress.	Execution
Denise Keiner/LM	Checkpoints were too few. Huron didn't show us things until they were done.	

NAME / ROLE	COMMENT	PHASE
Several	Huron didn't always give us their A team, or even B. Stacey, for example, had come from Oracle sales and this was her first technical project. Perhaps Huron did not want to face up to this. When Mike gave a couple of weeks' notice, Huron had no comparable alternate. They hired Suzie, but Becca was in charge for an interim period.	Execution
Tim Chapman/TS	We may not have picked the right consultants—we are still finding issues of quality in the code. Mike was good, the others were new or raw, and the price was high compared to other bids.	Planning Execution
Tim Chapman/TS	We didn't have the final documentation by the end of the project. There were reasons for that, but things would have been smoother if we had had it by the end. And as delivered, the system doc has a lot of unnecessary details and the package is skimpy on process: why and when to do the things it tells you how to do.	Execution
Sarah Grimsley/TS	We had communication issues in which we were unaware that Huron did not understand what we were saying to them. Issues raised to Becca were either answered "That's as designed," or "I'll check with the team," and then nothing.	Execution
Sarah Grimsley/TS Julie Marsh/PM	Sarah started by testing everything due to vague scope, then scaled back to known use cases. We did need to limit the scope of testing for the sake of schedule.	Execution
Julie Marsh/PM	Huron could not put together anything resembling a test plan, nor tell us what they had tested, and exhibit results.	Execution
Sarah Grimsley/TS	Huron left a lot of artifacts which are not functional parts of the system. Extra forms and so on make the system look even more complex than it is.	Execution
Sarah Grimsley/TS	Calculations were not set forth in the design; on some of them, Huron "winged it."	Planning
Denise Keiner/LM	Conversations about best practices, and the likely results of deviating from them, did not happen often enough. Huron PM Ida was the guide there.	Execution
Our business processes		
Julie Marsh/PM	There was a business process redesign at the heart of this project, and it should have been more complete before starting.	Planning
Julie Marsh/PM	There must be reasons we get slow performance, and they may involve the very large number of bins we spread our budgeting data over. Is that it, or is it more complicated?	All
Mark Kaletka/TL	It's not clear to what extent we were able to get business practices to change. We spent a lot of time getting agreement from FFMs on requirements, got a lot of pushback from certain FFMs on changes that were proposed, and did good bit of tweaking requirements and implementation throughout the whole project. In some cases, we ended up doing things that were unnatural to PBCS because of some requirement that might have been mutable.	Planning Execution

NAME / ROLE	COMMENT	PHASE
Matt Crawford/PM	For many years there has been a lot of complexity in Fermilab's way of doing things, and the complexity is costly. The costs of complexity grow, the more we rely on standardized solutions. Meanwhile, the cost of operations grows in a different way, the more we build our own solutions. Simplification would enable savings in either scenario.	All
Denise Keiner/LM	We expected one tool to solve everything, but the marketplace was not 'there'. Our resourcing complexity pushes the tool to its limits.	Planning
Denise Keiner/LM	Our dizzying number of tasks made this all hard. Oracle recommends no more than 10,000 members in a dimension. We have 5 or 6x that.	Planning Execution
Several	Alternate hierarchies are quadrupling our task count	Planning
User interaction		
Matt Crawford/PM	Some key customers had divergent goals, and little or no influence was exerted by senior management to converge their practices. This project is all about converging practices.	All
Matt Crawford/PM	Users in training showed a high level of interest.	Execution
Tim Chapman/TS	It is not clear that we had senior management buy-in at the outset. As we progressed, they did seem to support us as well as they could. Earlier top-level buy-in might have made the divisions more willing to adapt their processes to a common model.	Planning
Development		
Denise Keiner/LM	Loading data took many times more hours than we expected.	Execution
Denise Keiner/LM	The budget office spent so much time on data validation, they didn't get to operate or learn at the high level they needed to be on.	Execution

4. What was done well

WHAT WAS DONE WELL	PHASE
1. Despite initial worries, this was a project where the Computing and Finance people came together and worked as a team. This greatly helped cement relations between the two organizations.	Execution
2. Users were appropriately involved and trained during the staged delivery of the project.	Execution
3. The RFP work was good, all agreed on the use cases and so on.	Planning
4. The "War Room" meetings were beneficial.	Execution
5. In later stages of execution we used SNOW for technical oversight, but it would have been good to do that from the beginning, rather than track issues in a spreadsheet.	Execution
6. The involvement of FFMs in the design was beneficial, although it was difficult to get, and consensus among them even more difficult.	Planning

WHAT WAS DONE WELL	PHASE
7. We had always intended to build upon what this project created as we gained expertise. As an example of this, we have improved some functions, cutting a ten-minute 'save' operation down to a quarter of a minute. This addresses some Divisions' objections to using the budget tool.	Operation
8. There were several critical moments where we all came together and made it work.	Execution

5. What could have been done better

WHAT COULD HAVE BEEN DONE BETTER	PHASE
1. During tool evaluation, we should have investigated the effects of large data set sizes more fully And Huron should have done performance testing and warned us about those effects.	Execution
2. Parts of BPS code were written in ways very difficult to maintain and had to be rewritten at our expense.	Execution
3. We should have pushed back on Huron sooner to replace the first project manager they assigned us.	Execution
4. We did not require Huron to write a test plan and record the testing results. When we did our testing, we found a lot of issues we believe they should have found and fixed during their own testing.	Planning Execution
5. We did not involve the Budget Office in the project as early as we ought to have.	Planning
6. We lost scope as the schedule stretched out further and further. We need to understand where our estimates fell short.	Planning
7. ETL development was not closely coordinated between computing and the budget office.	Execution
8. Knowledge transfer lagged behind development, and as it progressed we learned new things to test. If KT had been front-loaded it would have been a greater benefit.	Execution
9. Our estimate of costs and duration was not accurate. In the future we might specify a fixed cost and scope, or a fixed cost and schedule.	Planning
10. We missed the assessment of reporting functions altogether.	Planning